

In the Specification

Please delete the paragraph beginning on Page 5, line 19, and ending on page 6, line 2, and please replace with the following new paragraph beginning on Page 5, line 19, and ending on page 6, line 2.

FIG. 1 shows a cut away side view of the reaction vessel 14 showing a stack of vials 24 progressing through longitudinal reaction chamber 32. FIG. 3 shows an electronic heating jacket 102 encompassing chamber 32. FIG. 3 further shows jacket 102 in combination with a structure for controlling temperature conditions within the chamber 32. The structure includes insulation 104 interposed within jacket 102, a high precision temperature measuring device 106, and a feedback heat controller 108. Examples of the high precision temperature measuring device include a thermocouple, thermistor, or platinum resistance thermometer. Heat controller 108 is attached to the interior of chamber 32 by leads 110. Electronic heating jacket 102 is shown with feedback control via temperature measuring device 106, which can be a probe, and heat controller 108. Other combinations can be used to control the temperature in chamber 32 such as a vapor heating jacket with pressure control, so long as the temperature can be controlled to within $\pm 2^{\circ}\text{C}$, desirably within $\pm 1^{\circ}\text{C}$ and preferably within $\pm 0.5^{\circ}\text{C}$.

Please delete the paragraph beginning on Page 6, line 15, and ending on page 6, line 27, and please replace with the following new paragraph beginning on Page 6, line 15, and ending on page 6, line 27.

Each thin film formulation is deposited into a vial 24 to provide an array of reaction vials 24. Vial 24 is preferably formed of a rigid material that is chemically inert in the reaction environment. An example of an acceptable vial for many reactions is a glass vial. When dealing with liquids with low vapor pressures or with lengthy reactions, it may be desirable to provide a covering, such as a selectively permeable cap or a septum (not shown) incorporating a feed tube or needle disposed such that a gas is allowed to move freely into and out of vial 24 while depletion of liquid by evaporation is minimized. This arrangement allows an external pressure source to act upon the gas in the reactant environment while evaporation of liquid is limited. In most applications, suitable materials for the cap include polytetrafluoroethylene (PTFE) and expanded PTFE. A suitable cap for use with 2 ml glass vials is "Clear Snap Cap, PTFE/Silicone/PTFE with Starburst, 11mm", part no. 27428, available from Supelco, Inc., Bellefonte, Pennsylvania.

Page 39, insert the following centered heading at top of page:


TABLE 12

Page 39, insert the following successive column headings over the columns, left to right:


Block
M1
M1 amt.
M2
M2 amt.
CS
CS amt.
Pressure
Temperature
Time
TON

Pages 45-47, Table 14 after the table heading, cancel entirely and replace by the following.


Source	DF	Seq SS	Adj SS	Adj MS	F Ratio	P	Significant at P<0.01
M1 amt	1	16412	16412	16412	0.201	0.654	
M2 amt	1	77926	77926	77926	0.954	0.329	
CS amt	1	33586	33586	33586	0.411	0.522	
Pressure	1	4616039	4616039	4616039	56.526	0.000	YES
Temperature	1	216802139	216802139	216802139	2654.854	0.000	YES
Time	1	31205785	31205785	31205785	382.131	0.000	YES
M1	1	22404811	22404811	22404811	274.358	0.000	YES
M2	1	182205	182205	182205	2.231	0.136	
CS	1	3702	3702	3702	0.045	0.832	
M1 amt*M2 amt	1	27036	27036	27036	0.331	0.565	
M1 amt*CS amt	1	58292	58292	58292	0.714	0.399	
M1 amt*Pressure	1	61467	61467	61467	0.753	0.386	
M1 amt*Temperature	1	26926	26926	26926	0.330	0.566	
M1 amt*Time	1	110415	110415	110415	1.352	0.246	
M1 amt*M1	1	34335	34335	34335	0.420	0.517	
M1 amt*M2	1	232680	232680	232680	2.849	0.092	



M1 amt*CS	1	260446	260446	260446	3.189	0.075	
M2 amt*CS amt	1	79627	79627	79627	0.975	0.324	
M2 amt*Pressure	1	341447	341447	341447	4.181	0.042	
M2 amt*Temperature	1	477	477	477	0.006	0.939	
M2 amt*Time	1	125869	125869	125869	1.541	0.215	
M2 amt*M1	1	14190	14190	14190	0.174	0.677	
M2 amt*M2	1	81553	81553	81553	0.999	0.318	
M2 amt*CS	1	8125	8125	8125	0.099	0.753	
CS amt*Pressure	1	33749	33749	33749	0.413	0.521	
CS amt*Temperature	1	295416	295416	295416	3.618	0.058	
CS amt*Time	1	7438	7438	7438	0.091	0.763	
CS amt*M1	1	132568	132568	132568	1.623	0.203	
CS amt*M2	1	37280	37280	37280	0.457	0.500	
CS amt*CS	1	23702	23702	23702	0.290	0.590	
Pressure*Temperature	1	40272	40272	40272	0.493	0.483	
Pressure*Time	1	38	38	38	0.000	0.983	
Pressure*M1	1	253770	253770	253770	3.108	0.079	
Pressure*M2	1	260899	260899	260899	3.195	0.075	
Pressure*CS	1	11954	11954	11954	0.146	0.702	
Temperature*Time	1	33291520	33291520	33291520	407.672	0.000	YES
Temperature*M1	1	43430	43430	43430	0.532	0.466	
Temperature*M2	1	94767	94767	94767	1.160	0.282	
Temperature*CS	1	90412	90412	90412	1.107	0.293	
Time*M1	1	1491	1491	1491	0.018	0.893	
Time*M2	1	93605	93605	93605	1.146	0.285	
Time*CS	1	76043	76043	76043	0.931	0.335	
M1*M2	1	77799	77799	77799	0.953	0.330	
M1*CS	1	169760	169760	169760	2.079	0.150	
M2*CS	1	407136	407136	407136	4.986	0.026	
M1 amt*M2 amt*CS amt	1	361079	361079	361079	4.422	0.036	
M1 amt*M2 amt*Pressure	1	21432	21432	21432	0.262	0.609	
M1 amt*M2	1	271	271	271	0.003	0.954	
amt*Temperature							
M1 amt*M2 amt*Time	1	13991	13991	13991	0.171	0.679	
M1 amt*M2 amt*M1	1	281433	281433	281433	3.446	0.064	
M1 amt*M2 amt*M2	1	1	1	1	0.000	0.997	
M1 amt*M2 amt*CS	1	116073	116073	116073	1.421	0.234	
M1 amt*CS amt*Pressure	1	114627	114627	114627	1.404	0.237	
M1 amt*CS	1	466	466	466	0.006	0.940	
amt*Temperature							
M1 amt*CS amt*Time	1	69157	69157	69157	0.847	0.358	
M1 amt*CS amt*M1	1	164860	164860	164860	2.019	0.156	
M1 amt*CS amt*M2	1	14698	14698	14698	0.180	0.672	
M1 amt*CS amt*CS	1	334131	334131	334131	4.092	0.044	
M1	1	235	235	235	0.003	0.957	
amt*Pressure*Temperature							



M1 amt*Pressure*Time	1	167809	167809	167809	2.055	0.153
M1 amt*Pressure*M1	1	8172	8172	8172	0.100	0.752
M1 amt*Pressure*M2	1	4377	4377	4377	0.054	0.817
M1 amt*Pressure*CS	1	6356	6356	6356	0.078	0.780
M1	1	67161	67161	67161	0.822	0.365
amt*Temperature*Time						
M1 amt*Temperature*M1	1	194664	194664	194664	2.384	0.123
M1 amt*Temperature*M2	1	569	569	569	0.007	0.934
M1 amt*Temperature*CS	1	11	11	11	0.000	0.991
M1 amt*Time*M1	1	6489	6489	6489	0.079	0.778
M1 amt*Time*M2	1	30862	30862	30862	0.378	0.539
M1 amt*Time*CS	1	163612	163612	163612	2.004	0.158
M1 amt*M1*M2	1	77397	77397	77397	0.948	0.331
M1 amt*M1*CS	1	11421	11421	11421	0.140	0.709
M1 amt*M2*CS	1	59409	59409	59409	0.727	0.394
M2 amt*CS amt*Pressure	1	6344	6344	6344	0.078	0.781
M2 amt*CS	1	0	0	0	0.000	1.000
amt*Temperature						
M2 amt*CS amt*Time	1	70019	70019	70019	0.857	0.355
M2 amt*CS amt*M1	1	89887	89887	89887	1.101	0.295
M2 amt*CS amt*M2	1	120523	120523	120523	1.476	0.225
M2 amt*CS amt*CS	1	8479	8479	8479	0.104	0.747
M2	1	190090	190090	190090	2.328	0.128
amt*Pressure*Temperature						
M2 amt*Pressure*Time	1	14716	14716	14716	0.180	0.671
M2 amt*Pressure*M1	1	7373	7373	7373	0.090	0.764
M2 amt*Pressure*M2	1	16357	16357	16357	0.200	0.655
M2 amt*Pressure*CS	1	35027	35027	35027	0.429	0.513
M2	1	26831	26831	26831	0.329	0.567
amt*Temperature*Time						
M2 amt*Temperature*M1	1	626	626	626	0.008	0.930
M2 amt*Temperature*M2	1	94448	94448	94448	1.157	0.283
M2 amt*Temperature*CS	1	1212	1212	1212	0.015	0.903
M2 amt*Time*M1	1	77055	77055	77055	0.944	0.332
M2 amt*Time*M2	1	6233	6233	6233	0.076	0.782
M2 amt*Time*CS	1	337817	337817	337817	4.137	0.043
M2 amt*M1*M2	1	38653	38653	38653	0.473	0.492
M2 amt*M1*CS	1	23751	23751	23751	0.291	0.590
M2 amt*M2*CS	1	3270	3270	3270	0.040	0.842
CS	1	84561	84561	84561	1.035	0.310
amt*Pressure*Temperature						
CS amt*Pressure*Time	1	212868	212868	212868	2.607	0.107
CS amt*Pressure*M1	1	34495	34495	34495	0.422	0.516
CS amt*Pressure*M2	1	20299	20299	20299	0.249	0.618
CS amt*Pressure*CS	1	12034	12034	12034	0.147	0.701
CS	1	174636	174636	174636	2.139	0.144



amt*Temperature*Time							
CS amt*Temperature*M1	1	535239896	535239896	535239896	6554.288	0.000	YES
CS amt*Temperature*M2	1	4708	4708	4708	0.058	0.810	
CS amt*Temperature*CS	1	331	331	331	0.004	0.949	
CS amt*Time*M1	1	112874	112874	112874	1.382	0.240	
CS amt*Time*M2	1	1469	1469	1469	0.018	0.893	
CS amt*Time*CS	1	804	804	804	0.010	0.921	
CS amt*M1*M2	1	75785	75785	75785	0.928	0.336	
CS amt*M1*CS	1	22036	22036	22036	0.270	0.604	
CS amt*M2*CS	1	34743	34743	34743	0.425	0.515	
Pressure*Temperature*Time	1	950930	950930	950930	11.645	0.001	YES
Pressure*Temperature*M1	1	18226	18226	18226	0.223	0.637	
Pressure*Temperature*M2	1	11544	11544	11544	0.141	0.707	
Pressure*Temperature*CS	1	67428	67428	67428	0.826	0.364	
Pressure*Time*M1	1	310071	310071	310071	3.797	0.052	
Pressure*Time*M2	1	10784	10784	10784	0.132	0.717	
Pressure*Time*CS	1	2008	2008	2008	0.025	0.875	
Pressure*M1*M2	1	12343	12343	12343	0.151	0.698	
Pressure*M1*CS	1	14220	14220	14220	0.174	0.677	
Pressure*M2*CS	1	67936	67936	67936	0.832	0.362	
Temperature*Time*M1	1	221695	221695	221695	2.715	0.100	
Temperature*Time*M2	1	38	38	38	0.000	0.983	
Temperature*Time*CS	1	10	10	10	0.000	0.991	
Temperature*M1*M2	1	24040	24040	24040	0.294	0.588	
Temperature*M1*CS	1	257092	257092	257092	3.148	0.077	
Temperature*M2*CS	1	848	848	848	0.010	0.919	
Time*M1*M2	1	53303	53303	53303	0.653	0.420	
Time*M1*CS	1	44080	44080	44080	0.540	0.463	
Time*M2*CS	1	7295	7295	7295	0.089	0.765	
M1*M2*CS	1	319669	319669	319669	3.915	0.049	
Error	382	31195094	31195094	81662.55			
Total	511	885328201					

In the Claims

Cancel claims 16-25.

Add the following claims.

26. A combinatorial chemical synthesis system, comprising a vessel having:
a charge port capable of sequentially receiving a plurality of discrete combinations of reactants;

Sub-Ent
a reaction chamber in communication with said charge port, said reaction chamber being capable of receiving and enclosing the plurality of discrete combinations of reactants disposed linearly within said chamber; and

a discharge port in communication with said reaction chamber to sequentially discharge reaction products of said combinations from said reaction chamber.

27. The system of claim 26, wherein said reaction chamber is of a size adequate to receive a plurality of vials sequentially charged through said charge port and into said chamber.

28. The system of claim 26, wherein said charge port and said discharge port each comprises an air lock.

29. The system of claim 26, wherein said charge port and said discharge port each comprises an air lock controlled by a ball valve.

30. The system of claim 26, wherein said chamber is vertically longitudinal and is adapted to receive each of said combinations of reactants in a vial by sequential gravity loading from the charge port.

Sub-E2
~~31. The system of claim 26, further comprising a detector proximate said discharge port to detect said sequentially discharged reaction product from said reaction chamber.~~

32. The system of claim 26, further comprising a controller in communication with said reaction vessel to control varying reaction parameters within said chamber.

33. The system of claim 26, further comprising a controller in communication with said reaction vessel to control a sequence of charging said combinations of reactants to said chamber or a sequence of discharging said products from said chamber.

34. The system of claim 26, further comprising a detector in communication with said discharge port to detect said sequentially discharged reaction products and a processor in communication with said controller and said detector to correlate reaction or reactant variables with a corresponding reaction product.

Sub-E3
~~35. A combinatorial chemical synthesis system, comprising a vessel having:~~